

Claims

1. A method for a communication unit to extend battery life comprising the steps of:

5 exiting a sleep mode in which power is conserved to begin monitoring a paging slot;

 receiving in the paging slot an indication of what groups of messages will be transmitted by a communication infrastructure in the paging slot;

10 determining whether any of the groups of messages indicated need to be received by the communication unit during the paging slot; and

 when the groups of messages indicated do not need to be received, entering a sleep mode to conserve power.

15 2. The method of claim 1 wherein the indication of what groups of messages will be transmitted in the paging slot comprises an indication of what types of messages will be transmitted in the paging slot and wherein the method of claim 1 further comprises the step of:

 when at least one type of message indicated does need to be received, monitoring the paging slot to receive all of the messages in a group of needed messages before entering a sleep mode to conserve power, wherein the group of needed messages comprises at least one message of the at least one type of message indicated that does need to be received.

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3. The method of claim 2 further comprising the step of receiving in the paging slot an indication of relative transmit ordering for at least some of the messages that will be transmitted during the paging slot, wherein the step of monitoring comprises the steps of:

5 receiving at least one message in the group of needed messages;
determining when all of the messages in the group of needed messages have been received based on the indication of relative ordering; and
entering the sleep mode to conserve power before the paging slot

10 ends.

4. The method of claim 3 wherein the indication of relative transmit ordering for at least some of the messages that will be transmitted during the paging slot comprises an indication of the relative transmit order of messages that will be transmitted within the same subgroup, wherein a subgroup includes all the messages of a particular message type that will be transmitted during the paging slot.

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5. The method of claim 1 wherein the indication of what groups of messages will be transmitted during the paging slot comprises an indication of which groups of communication units will be addressed by messages transmitted during the paging slot.

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6. The method of claim 5 wherein the indication of which groups of communication units will be addressed by messages transmitted during the paging slot comprises a sequence of bits that is compressed.

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7. The method of claim 5 wherein the indication of which groups of communication units will be addressed by messages transmitted during the paging slot comprises an indication of which paging hash categories of communication units will be addressed by messages transmitted during
5 the paging slot.

8. The method of claim 1 wherein the types of messages comprise at least one message type selected from the group consisting of broadcast-message type, system-overhead type, nonslotted-individually-addressed-
10 or-multicast-message type, and slotted-individually-addressed-or-multicast-message type.

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9. A method for a communication infrastructure to facilitate communication units in extending their battery life, the method comprising the steps of:

5 determining what groups of messages will be transmitted during a paging slot;

 transmitting in the paging slot an indication of what groups of messages will be transmitted during the paging slot to enable receiving communication units to enter a sleep mode and conserve power when the groups of messages indicated do not need to be received; and

10 transmitting in the paging slot messages of the groups indicated.

10. The method of claim 9 wherein the indication of what groups of messages will be transmitted in the paging slot comprises an indication of what message types will be transmitted in the paging slot and wherein

15 method of claim 10 further comprises the step of:

 transmitting in the paging slot an indication of relative transmit ordering for at least some of the messages that will be transmitted during the paging slot to enable the receiving communication units to enter a sleep mode and conserve power immediately after receiving the last message that needs to be received, as determined based on the relative transmit order indicated, wherein the step of transmitting messages of the type indicated comprises transmitting the messages in the relative transmit order indicated.

20 11. The method of claim 10 wherein the indication of relative transmit ordering for at least some of the messages that will be transmitted during the paging slot comprises an indication of the relative transmit order of messages that will be transmitted within the same subgroup, wherein a subgroup includes all the messages of a particular message type that will

25 be transmitted during the paging slot.

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12. The method of claim 9 wherein the indication of what groups of messages will be transmitted during the paging slot comprises an indication of which groups of communication units will be addressed by messages transmitted during the paging slot.

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13. The method of claim 12 wherein the indication of which groups of communication units will be addressed by messages transmitted during the paging slot comprises a sequence of bits that is compressed.

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14. A communication unit comprising:

a receiver arranged to receive in a paging slot an indication of what groups of messages will be transmitted by a communication infrastructure during the paging slot; and

5 a processor, coupled to the receiver, arranged to instruct the receiver to exit a sleep mode in which power is conserved and begin monitoring the paging slot, arranged to determine whether any of the groups of messages indicated need to be received by the communication unit during the paging slot, and arranged to instruct the receiver to enter a
10 sleep mode to conserve power when the groups of messages indicated do not need to be received.

15. The communication unit of claim 14 wherein the indication of what groups of messages will be transmitted in the paging slot comprises an
15 indication of what message types will be transmitted in the paging slot, wherein the processor is further arranged to instruct the receiver to monitor the paging slot to receive all of the messages in a group of needed messages before entering a sleep mode to conserve power when at least one type of message indicated does need to be received, wherein
20 the group of needed messages comprises at least one message of the at least one type of message indicated that does need to be received.

25. The communication unit of claim 15 wherein the receiver is further arranged to receive in the paging slot an indication of relative transmit ordering for at least some of the messages that will be transmitted during the paging slot and to receive at least one message in the group of needed messages and wherein the processor is further arranged to determine when all of the messages in the group of needed messages have been received based on the indication of relative ordering to instruct
30 the receiver to enter the sleep mode to conserve power before the paging slot ends.

17. The communication unit of claim 14 wherein the indication of what groups of messages will be transmitted during the paging slot comprises an indication of which groups of communication units will be addressed by 5 messages transmitted during the paging slot.

18. A communication infrastructure comprising:
a controller arranged to determine what groups of messages will be transmitted during a paging slot; and
a base site, coupled to the controller, arranged to transmit in a
5 paging slot an indication of what groups of messages will be transmitted during the paging slot to enable receiving communication units to enter a sleep mode and conserve power when the groups of messages indicated do not need to be received and arranged to transmit in the paging slot messages of the groups indicated.

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19. The communication infrastructure of claim 18 wherein the communication infrastructure is a code division multiple access (CDMA) communication infrastructure.

15 20. The communication infrastructure of claim 18 wherein the indication of what groups of messages will be transmitted is transmitted on a channel selected from the group consisting of a paging channel (PCH) and a forward common control channel (FCCH) and is transmitted with a message that is encoded, interleaved, and protected by cyclical
20 redundancy checking (CRC).

21. The communication infrastructure of claim 18 wherein the indication of what groups of messages will be transmitted in the paging slot comprises an indication of what message types will be transmitted in the paging slot, wherein the base site is further arranged to transmit in the 5 paging slot an indication of relative transmit ordering for at least some of the messages that will be transmitted during the paging slot to enable the receiving communication units to enter a sleep mode and conserve power immediately after receiving the last message that needs to be received, as determined based on the relative transmit order indicated, and wherein 10 the base site is further arranged to transmit the messages in the relative transmit order indicated.

22. The communication infrastructure of claim 18 wherein the indication of what groups of messages will be transmitted during the 15 paging slot comprises an indication of which groups of communication units will be addressed by messages transmitted during the paging slot.